What is claimed is:

1. An improved method for accumulating a working volume of concentrated cumene hydroperoxide in a continuous process for the production of phenol and acetone from the decomposition of cumene hydroperoxide, wherein concentrated cumene hydroperoxide is continuously fed from a distillation unit to an accumulation vessel, and from said accumulation vessel to a decomposer unit, the improvement comprising:

providing an accumulation vessel between said distillation unit and said decomposer unit, said accumulation vessel being a tube and shell heat exchanger;

feeding concentrated cumene hydroperoxide from said distillation unit to said accumulation vessel such that a working volume of concentrated cumene hydroperoxide is accumulated in said accumulation vessel;

keeping said working volume of concentrated cumene hydroperoxide in a constant state of mixed flow;

applying direct cooling to said working volume of concentrated cumene hydroperoxide; and

feeding concentrated cumene hydroperoxide to said decomposer unit from said working volume of concentrated cumene hydroperoxide.

2. The improved method according to claim 1, wherein the major axis of said intermediate accumulation vessel is oriented vertically.

3. The improved method according to claim 2, wherein said intermediate accumulation vessel is a u-tube type heat exchanger.

4. The improved method according to claim 1, wherein the major axis of said intermediate accumulation vessel is oriented horizontally.

5. The improved method according to claim 1, wherein said working volume of concentrated cumene hydroperoxide is accumulated on the shell side of said tube and shell heat exchanger.

6. The improved method according to claim 5, wherein the interior of said tube and shell heat exchanger is baffled.

7. The improved method according to claim 1, wherein said working volume of concentrated cumene hydroperoxide is accumulated on the tube side of said tube and shell heat exchanger.

8. The improved method according to claim 1, wherein said intermediate accumulation vessel is equipped with a least one level sensor.

9. The improved method according to claim 1, wherein said intermediate accumulation vessel is equipped with a least one temperature sensor.

10. The improved method according to claim 1, wherein said intermediate accumulation vessel is fabricated from stainless steel.

11. The improved method according to claim 1, wherein the tube pitch of said tube and shell heat exchanger is about 2 inches.